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Response to Office Action of April 7, 2004

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method of database management, comprising the steps of:

generating characteristic rules based upon data definition information and data, the data definition information including items specifying analysis and conditions;

generating a multidimensional database based upon the characteristic rules, the data and the data definition information, the multidimensional database being organized based upon conclusion items and condition items of the characteristic rules, the conclusion items specifying an analysis dimension, the condition items specifying a key dimension;

selecting one of the characteristic rules via a predetermined user-interface;

extracting a selected segment and a speculation data list from the data based upon the condition items and the selected one of the characteristic rules, the selected segment specifying conditions for selecting the speculation data list;

generating a speculation model based upon the data, the selected segment and the speculation data list;

selecting one of the speculation models while reviewing the extracted and selected segment via the predetermined user-interface; and

outputting speculation results based upon the selected one of the speculation models and the speculation data list.

2. (original) The method of database management according to claim 1 further comprising: displaying a portion of the multidimensional database that is corresponding to the selected one of the characteristic rules, the displayed portion being organized in rows and columns to define cells based upon the condition items of the selected one of the characteristic rules, the cells each having a value for the analysis dimension.

3. (original) The method of database management according to claim 1 wherein the data is customer data for maintaining a predetermined subscribed service while the analysis dimension is probability of cancellation of the predetermined subscribed service.

4. (currently amended) A method of database management, comprising the steps of:
generating characteristic rules based upon data definition information and data, the data definition information including items specifying analysis and conditions;
generating a multidimensional database based upon the characteristic rules, the data and the data definition information, the multidimensional database being organized based upon conclusion items and condition items of the characteristic rules, the conclusion items specifying an analysis dimension, the condition items specifying a key dimension;
selecting one of the characteristic rules via a predetermined user-interface;
extracting a selected segment and a speculation data list from the data based upon the condition items and the selected one of the characteristic rules, the selected segment specifying conditions for selecting the speculation data list;
generating a speculation model based upon the data, the selected segment and the speculation data list;
selecting one of the speculation models while reviewing the extracted and selected segment via the predetermined user-interface; and
outputting speculation results based upon the selected one of the speculation models and the speculation data list. The method of database management according to claim 1 wherein the speculation results include the selected segment.

5. (original) The method of database management according to claim 1 wherein said modifying the condition items is accomplished by displaying a predetermined set of the condition items in a pull-down menu and selecting one of the condition items by a pointing device.

6. (original) The method of database management according to claim 1 wherein said generating the speculation model further including additional steps of:

dividing the speculation data list into candidate model data and verification data;

generating candidate speculation models based upon inputs as specified by combinations of the conditions in the data definition information and outputs as specified by the analysis in the data definition information;

verifying each of the candidate speculation models by extracting information from the candidate model data according to the candidate speculation model and speculating based upon the verification data;

evaluating the candidate speculation models based upon said verifying to generate evaluation values; and

selecting the speculation model from the candidate speculation models based upon the evaluation values.

7. (original) The method of database management according to claim 6 wherein the evaluation values are mean square errors.

8. (currently amended) A system for data mining a database comprising:

a data storage unit for storing data definition information and data;

a characteristic rule generation unit connected to said data storage unit for generating characteristic rules based upon the data definition information and the data, the data definition information including items specifying analysis and conditions, the characteristic rules being stored in said data storage unit;

a segment selection unit connected to said data storage unit for generating a multidimensional database based upon the characteristic rules, the data and the data definition information, the multidimensional database being organized based upon conclusion items and condition items of the characteristic rules, the conclusion items specifying an analysis dimension, the condition items specifying a key dimension, the multidimensional database being stored in said data storage unit;

a user interface unit connected to said data storage unit for <u>providing a predetermined user-interface for</u> selecting one of the characteristic rules and one of t̶h̶e̶-speculation models <u>while reviewing a selected segment</u>; and

a speculation processing unit connected to said storage unit and said processing unit for extracting a̶-<u>the</u> selected segment and a speculation data list from the data based upon the selected one of the characteristic rules, the selected segment specifying conditions for selecting the speculation data list, said speculation processing unit generating a̶-<u>one of the</u> speculation model<u>s</u> based upon the data, the selected segment and the speculation data list, said speculation processing unit outputting speculation results based upon the selected one of the speculation models and the speculation data list.

9. (original) The system for data mining a database according to claim 8 further comprising:

a processing unit connected to said storage unit and said user interface unit for outputting to said storage unit a first portion of the multidimensional database that is corresponding to the selected one of the characteristic rules, the first portion being organized in rows and columns to define cells based upon the condition items of the selected one of the characteristic rules, the cells each having a value for the analysis dimension, said processing unit also outputting a second portion of the multidimensional database that is corresponding to the modified condition items; and

a displaying unit connected to said processing unit and said storage unit for displaying the first portion of the multidimensional database and the second portion of the multidimensional database.

10. (original) The system for data mining a database according to claim 8 wherein the data is customer data for maintaining a predetermined subscribed service while the analysis dimension is probability of cancellation of the predetermined subscribed service.

11. (currently amended) <u>A system for data mining a database comprising:</u>

<u>a data storage unit for storing data definition information and data;</u>

a characteristic rule generation unit connected to said data storage unit for generating characteristic rules based upon the data definition information and the data, the data definition information including items specifying analysis and conditions, the characteristic rules being stored in said data storage unit;

a segment selection unit connected to said data storage unit for generating a multidimensional database based upon the characteristic rules, the data and the data definition information, the multidimensional database being organized based upon conclusion items and condition items of the characteristic rules, the conclusion items specifying an analysis dimension, the condition items specifying a key dimension, the multidimensional database being stored in said data storage unit;

a user interface unit connected to said data storage unit for providing a predetermined user-interface for selecting one of the characteristic rules and one of speculation models while reviewing a selected segment; and

a speculation processing unit connected to said storage unit and said processing unit for extracting the selected segment and a speculation data list from the data based upon the selected one of the characteristic rules, the selected segment specifying conditions for selecting the speculation data list, said speculation processing unit generating a one of the speculation models based upon the data, the selected segment and the speculation data list, said speculation processing unit outputting speculation results based upon the selected one of the speculation models and the speculation data list, ~~The system for data mining a database according to claim 8~~ wherein the speculation results include the selected segment.

12. (original) The system for data mining a database according to claim 8 wherein said user interface unit modifying the condition items by displaying a predetermined set of the condition items in a pull-down menu and selecting one of the condition items by a pointing device.

13. (original) The system for data mining a database according to claim 8 wherein said speculation processing unit further comprises:

a data dividing unit for dividing the speculation data list into candidate model data and verification data;

a candidate model generation unit for generating candidate speculation models based upon inputs as specified by combinations of the conditions in the data definition information and outputs as specified by the analysis in the data definition information; and

a verification unit for connected to said candidate model generation unit for verifying each of the candidate speculation models by extracting information from the candidate model data according to the candidate speculation model and speculating based upon the verification data, said verification unit evaluating the candidate speculation models based upon said verifying to generate evaluation values and selecting the speculation model from the candidate speculation models based upon the evaluation values.

14. (original) The system for data mining a database according to claim 13 wherein the evaluation values are mean square errors.

15. (currently amended) A storage medium for storing computer executable instructions for managing a database, the computer executable instructions performing the steps of:

generating characteristic rules based upon data definition information and data, the data definition information including items specifying analysis and conditions;

generating a multidimensional database based upon the characteristic rules, the data and the data definition information, the multidimensional database being organized based upon conclusion items and condition items of the characteristic rules, the conclusion items specifying an analysis dimension, the condition items specifying a key dimension;

selecting one of the characteristic rules via a predetermined user-interface;

extracting a selected segment and a speculation data list from the data based upon the condition items and the selected one of the characteristic rules, the selected segment specifying conditions for selecting the speculation data list;

generating a speculation model based upon the data, the selected segment and the speculation data list;

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selecting one of the speculation models while reviewing the extracted and selected segment via the predetermined user-interface; and

outputting speculation results based upon the selected one of the speculation models and the speculation data list.

16. (original) The storage medium for storing computer executable instructions according to claim 15 further comprising:

displaying a portion of the multidimensional database that is corresponding to the selected one of the characteristic rules, the displayed portion being organized in rows and columns to define cells based upon the condition items of the selected one of the characteristic rules, the cells each having a value for the analysis dimension.

17. (original) The storage medium for storing computer executable instructions according to claim 15 wherein the data is customer data for maintaining a predetermined subscribed service while the analysis dimension is probability of cancellation of the predetermined subscribed service.

18. (currently amended) A storage medium for storing computer executable instructions for managing a database, the computer executable instructions performing the steps of:

generating characteristic rules based upon data definition information and data, the data definition information including items specifying analysis and conditions;

generating a multidimensional database based upon the characteristic rules, the data and the data definition information, the multidimensional database being organized based upon conclusion items and condition items of the characteristic rules, the conclusion items specifying an analysis dimension, the condition items specifying a key dimension;

selecting one of the characteristic rules via a predetermined user-interface;

extracting a selected segment and a speculation data list from the data based upon the condition items and the selected one of the characteristic rules, the selected segment specifying conditions for selecting the speculation data list;

generating a speculation model based upon the data, the selected segment and the speculation data list;

selecting one of the speculation models while reviewing the extracted and selected segment via the predetermined user-interface; and

outputting speculation results based upon the selected one of the speculation models and the speculation data list, ~~The storage medium for storing computer executable instructions according to claim 15~~ wherein the speculation results include the selected segment.

19. (original) The storage medium for storing computer executable instructions according to claim 15 wherein said modifying the condition items is accomplished by displaying a predetermined set of the condition items in a pull-down menu and selecting one of the condition items by a pointing device.

20. (original) The storage medium for storing computer executable instructions according to claim 15 wherein said generating the speculation model further including additional steps of:

dividing the speculation data list into candidate model data and verification data;

generating candidate speculation models based upon inputs as specified by combinations of the conditions in the data definition information and outputs as specified by the analysis in the data definition information;

verifying each of the candidate speculation models by extracting information from the candidate model data according to the candidate speculation model and speculating based upon the verification data;

evaluating the candidate speculation models based upon said verifying to generate evaluation values; and

selecting the speculation model from the candidate speculation models based upon the evaluation values.

21. (original) The storage medium for storing computer executable instructions according to claim 20 wherein the evaluation values are mean square errors.